Group D. Gryochrome Nerve Cells.—The stained part of the cell substance consists of minute granules (Körnchen). So far N. has not observed any type belonging to this group.

The nerve cells in which the nucleus forms the principal part are classified in the following manner :

(*A*) Cytochrome Nerve Cells. Granuli.—The cell-body is only rudimentarily developed (only traces of it present). The stained nucleus reaches the size of the ordinary leucocyte nuclei. Such cells are found in the granulous stratum of the cerebellar cortex.

1. Type of the A Granuli.—Cytochrome cells of the type a.
2. Type of the B Granuli.—Cytochrome cells of the type b, etc.

(*B*) Karyochrome Nerve Cells. Nucleus Cells.—The cell-body is rudimentarily developed. The stained nucleus has the size of nerve cell nuclei ; in each case it is larger than the nuclei of the neuroglia. The cells of the substantia gelatinosa Rolando of the spinal cord belong to this group.

1. Type of the A Nuclei Cells.—Karyochrome cells of the type a.
2. Type of the B. Nuclei Cells.—Karyochrome cells of the type b, etc.

In each single type it would have to be noted whether the individual cell is pyknomorphe, parapyknomorphe or chromophile. As a rule, the pyknomorphe state corresponds to the relatively smallest volume of the cells, that is, the pyknomorphe cells are relatively the smallest, the parapyknomorphe larger, the apyknomorphe the largest.

N. inclines much to the view that the "apyknomorphe" state of the cell is that of rest, while the activity of the cell produces successively the "parapyknomorphe" and "pyknomorphe" states. At least he could state a considerable increase of "pyknomorphe" cells in the seventh nerve nucleus after faradic excitation. He emphasizes, however, that in all these the states cardinal structure which gives the cell its characteristic individual appearance remains unaltered.

The "chromophile" cells are still a puzzle. They are met with everywhere, although in much smaller number than the "non-chromophile" cells. Their significance is as yet unknown although it is certain that they are an "inferior" type. They vary in number and stay in an unaccountable manner. In stating pathological changes only those observations can, therefore, be made direct use of in which we know positively that they were not made upon chromophile cells. In all cases where it is doubtful whether the examined object is a chromophile cell or not, it remains uncertain whether pathological changes are present or not.

In other regards the stain allows such fine distinctions that the least pathological changes can be discovered. The study of the fine structure of the nerve cell is not made superfluous by Golgi's and Ramon y Cajal's methods. Only by a combination of both manners of investigations can we approach to full knowledge. Only those classifications based upon the cell connections as discovered by the methods of metal-impregnation which are in full harmony with the structural conditions of the nerve cells are justified scientifically.

The author refers to his article, "Uber die sogenannten Granula der Nervenzellen (*Neurologisches Centralblatt*, 1894, No. 13), in which the various types and states of nerve cells are illustrated by drawings.

ONUF.

PATHOLOGICAL.

On the Lesions of the Crura Cerebri in Tabes.—G. Pacettic, M.D. (*Rivisto Sperimentale di Freniatria*, etc., 1894, page 518.) A report of one case, concerning a man of 40 years. A brother had suffered from convulsive fits, and two children were affected with eclampsia.

Patient had committed many sexual excesses. No indication of syphilis. Potation denied. Disease began in 1880, with laucinating pain in the last three toes of the left foot. At the same time he noticed diplopia and progressive impairment of vision, chiefly of right eye. The teeth of the upper jaw began to fall out without apparent cause, and without pain. Disturbances of gait chiefly in the dark. In January, 1893, following condition : Feeling of oppression and vertigo in head. Innervation of facial nerve normal, as is also that of the hypoglossus, aside from tremor in toto of tongue. Uvula deviates to the left. Mastication and deglutition normal. Bilateral paresis of the crico-arytænoidei post muscles. Sensibility to pain diminished over dorsum and sides of nose, over the superior alveolar process, hard palate, and in a lesser degree also over the whole region corresponding to the distribution of the V. nerve. Slight ptosis of left upper lid. Pupils unequal, do not respond neither to light nor accommodation. Aside from a slight mobility upwards and downwards, the eye movements abolished on both sides. No diplopia. Vision O. S. = $\frac{1}{8}$. O. D. = counting of fingers at distance of four inches. Lessening of sense of taste on the whole right side of tongue. Hyposmia of the right side. Upper extremities: Both sensibility, motility and muscular sense normal. Lower extremities: With open eyes no disturbances of station, gait, or of co-ordination of movements. With closed eyes vaccillating station and gait, movements uncertain. Tactile and thermic sensibility aside from a slight impairment of localization well conserved. On lowest third of legs considerable hypalgesia, chiefly over dorsum and sole of feet, accompanied by retardation of the sensation of pain. Knee jerk and plantar reflex abolished on both sides. Repeated laryngeal crises, in one of which patient died in March, 1893. Microscopic examination of spinal cord and crura cerebri :

In the lumbar portion of the cord degeneration of the anterior, medial and posterior root zones (Flechzig) ; also of Lissauer's tract. In the dorsal portion degeneration in medial and posterior part of Goll's and lateral part of Burdach's columns. In the cervical portion rarification of Goll's columns. In the nuclei of the posterior columns rarification of the reticulum of nerve fibres.

Complete degeneration of both ascending V. roots up to the level of the crossing of the pyramids, further cephalad degeneration less pronounced.

Number of cells of the sensory nucleus propr. of the V. nerve diminished, reticulum of fibres rarified. Motor nucleus of the V. dorsal V. nucleus (Edinger), central path and radix descendens of the V. normal. Considerable atrophy of the substation ferruginea on both sides. Intense rarification of the solitary fasciules, but the arciform fibres which surround it on its dorsal part perfectly preserved. VI. nucleus perfectly atrophied without one normal cell, roots also intensely atrophic. The principal nucleus of the IV. deeply altered. Of the nucleus posterior (Westphal) no trace left. Fibres of trochlearis roots much altered, especially those of the right ones.

Moderate atrophy of the nucleus ventralis poster. (Siemerling) decreasing cephalad, more marked in the left than in the right one, in which latter it is quite insignificant. Intense atrophy of the whole nucleus dorsalis of the III., most pronounced in the nucleus dorsalis outer (Perlio). In the nucleus ventralis of the III. a larger number of cells, especially those situated medially, conserved, otherwise an atrophy which increases cephalad in intensity. Nucleus Edinger-Westphal: Altered in the same measure as the principal III. nucleus ; the pars medialis better preserved than the pars lateralis. The nucleus medianus outer and nucleus bilateral. outer (Darkschewitsch) least altered. Of the root bundles of the III. those which take origin from the dorsal portion of the principal nucleus are missing altogether. The III. trunks (nerves) highly degenerated. Longitudinal fasiculi of one posterior commissure entirely normal.

P. is much inclined to accept the view that the substantia ferruginea is connected with the V. nerve of the same side. The visceral crisis and laryngeal symptoms, also the disturbances of the cardiac innervation, have been caused by the grave alterations of the respiratory fasiculi.

The arciform fibre bundle which occupies the region dorsal from the respiratory bundle must be considered as a central path of the XII.; it may also contain a few fibres originating from the funic. gracil. et cuneat. nuclei, but in no way connected with the respiratory fasciculi.

As the IV. nucleus was affected in a higher degree than its roots, P. deems it very probable that the nucleus was primarily affected, the roots secondarily.

The nucleus ventralis posterior was nearly normal on the right, altered on the left side Clinically there was ptosis of the left upper lid. P. concludes that the nucleus ventralis posterior represents the beginning of the III. nucleus and is probably the centre for the elevator of the lid; but it may also give off fibres for muscles supplied by the superior VII. nerve. The case throws no light upon the localization of the centre for the internal ocular muscles. P. accepts Schütz's and Siemerling's view that the pupillary reflexes are transmitted by way of fibres of the central pericavitial central gray matter. He found an intense rarification of the fibres of this formation, while Meynert's radial fibres, which Ross declares to conduct the said transmissions, and the posterior commissure to which Darkschewitsch describes said function, were perfectly normal. ONUF.

Pathogenesis of Acromegaly.—Prof. A. Tamburini (*Revista Sperimentale di freniatria*, etc., 1894, fasc. iii-ix., p. 559).

The patient was an unmarried woman of thirty-six years. One brother had suffered for several months from a mental disease in which religious ideas predominated, and a sister was affected with melancholia. The patient's disease probably began at the age of twenty, and developed into typical acromegaly. She died from a progressive marasmus caused by intestinal catarrh. The autopsy revealed the presence of a tumor, size of a pigeon egg of the pituitary gland, affecting its epithelial part, while the "nervous" part was normal. No pronounced pathological changes of the thyroid gland. Brain without changes. In the spinal cord slight degeneration of Burdach's columns, and of the root zones of the cervical dorsal regions. ONUF.

On Traumatic Tabes and the Pathogenesis of Tabes in General.—By Ed. Hitzig. Tabes is a chronic degeneration of the central nervous system—brain as well as spinal cord. Some neurological writers ascribe an ætiological importance to traumatism of any kind (mechanical or thermal injury to the periphery). Injuries to the skull and the spinal column, in so far as they are liable to be followed by gross anatomical changes of the brain and the cord itself, are not considered in the monograph.

In order to come to certain conclusions in the matter the author attempts to answer the following questions:

1. Is there an undisputed causal relationship between traumatism, (mechanical or thermal injury to the periphery) and the symptom-complex known as tabes dorsalis?

2. Are there, from an ætiological point of view, several different forms of tabes, or are they all dependent upon one common cause?

Our present knowledge supplies us with rather limited means for the solution of the first of the above questions. The literature on the subject being comparatively meagre and partly incomplete, we hardly can expect the result of this research to be conclusive. Four cases of the author's personal observation, 41 cases scattered through the older litera-